

# PSA/ACT (4G10): sc-53144

## BACKGROUND

Prostate specific antigen (PSA), also designated  $\gamma$ -seminoprotein, seminin, p30 antigen, semenogelase, and kallikrein 3 (KLK3), was first identified as a glycoprotein in human seminal plasma. PSA was determined by sequence similarity to be a member of the kallikrein subfamily of trypsin proteases. PSA is a serine protease that hydrolyzes the major human seminal protein, the seminal plasma mobility inhibitor precursor, or semenogelin I (SPMIP or Sgl), which leads to semen liquification. PSA production and expression are highest in normal, benign hyperplastic and cancerous tissues of the prostate, although PSA has also been detected in accessory male sex glands and in breast cancer. PSA has been identified as an aid in the early detection of prostate cancer and is a commonly used tumor marker.

## REFERENCES

1. Watt, K.W., et al. 1986. Human PSA: structural and functional similarity with serine proteases. *Proc. Natl. Acad. Sci. USA* 83: 3166-3170.
2. Schaller, J., et al. 1987. Isolation, characterization and amino-acid sequence of  $\gamma$ -seminoprotein, a glycoprotein from human seminal plasma. *Eur. J. Biochem.* 170: 111-120.
3. Lundwall, A. and Lilja, H. 1987. Molecular cloning of human PSA cDNA. *FEBS Lett.* 214: 317-322.
4. Catalona, W.J., et al. 1993. Detection of organ-confined prostate cancer is increased through PSA-based screening. *JAMA* 270: 948-954.
5. Robert, M. and Gagnon, C. 1996. Purification and characterization of the active precursor of a human sperm motility inhibitor secreted by the seminal vesicles: identity with semenogelin. *Biol. Reprod.* 55: 813-821.
6. Seregini, E., et al. 1996. Biochemical characteristics and recent biological knowledge on PSA. *Tumori* 82: 72-77.
7. Robert, M., et al. 1997. Characterization of PSA proteolytic activity on its major physiological substrate, the sperm motility inhibitor precursor/ semenogelin I. *Biochemistry* 36: 3811-3819.
8. Chu, T.M. 1997. Prostate-specific antigen and early detection of prostate cancer. *Tumour Biol.* 18: 123-134.
9. Chen, Z., et al. 1998. Monoclonal antibodies 2F5 and 4G10 against PSA complexed to  $\alpha$ 1-antichymotrypsin. *J. Urol.* 160: 870-875.

## CHROMOSOMAL LOCATION

Genetic locus: KLK3 (human) mapping to 19q13.33.

## SOURCE

PSA/ACT (4G10) is a mouse monoclonal antibody raised against purified PSA/ACT complex of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

PSA/ACT (4G10) is recommended for detection of PSA/1-antichymotrypsin complex of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

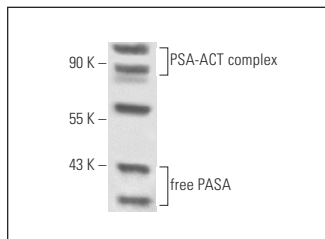
Molecular Weight of PSA/ACT: 34 kDa.

Positive Controls: PC-3 cell lysate: sc-2220.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



PSA/ACT (4G10): sc-53144. Western blot analysis of PSA/ACT expression in PC-3 whole cell lysate.

## SELECT PRODUCT CITATIONS

1. Imai, S., et al. 2005. Identification and characterization of a novel human type II diacylglycerol kinase, DGK $\kappa$ . *J. Biol. Chem.* 280: 39870-39881.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.



See **PSA (A67-B/E3): sc-7316** for PSA antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.